REMARKS

The rejections under 35 U.S.C. §103(a) of Claims 16-24, 30-32 and 35-38 as unpatentable over U.S. Patent No. 5,777,779 (Hashimoto et al), in view of JP 08-083581 (Kiju) alone, and

for Claims 25-26, additionally in view of EP 692,463 (Chartier et al);

for Claims 27-29, additionally in view of WO 97/10185 (Chopin et al);

for Claims 33-34, 39-49 and 55-61, additionally in view of U.S. 5,578,404 (Kliem);

for Claims 50-51, additionally in view of Kliem and Chartier et al; and

for Claims 52-54, additionally in view of Kliem and Chopin et al,

are respectively traversed.

The present invention relates to glazing having electrically controllable optical and/or energy properties. More particularly, as recited in Claim 61, the invention is a glazing comprising (a) at least one electrically controllable system having variable optical and/or energy properties, (b) at least one coating for adjusting the optical appearance conferred on the said glazing by the said system, said at least one coating having antireflection properties in the visible, wherein said coating having antireflection properties is deposited on at least one of the external faces of said glazing and comprises a stack of thin layers having alternately high and low reflective indices or a graded-refractive-index layer, and (c) at least one coating for attenuating/modifying the color of the glazing in reflection.

When both the antireflection and attenuating/modifying coatings are present, superior results are obtained, which are unobtainable without both layers, or without the antireflection coating. This superiority is demonstrated in the comparative data of record, and particularly, in Examples 3 and 4, described in the specification beginning at page 18, line 37. Better filtering properties toward heat rays, higher TL values in the bleached state (with a TL that

can reach 80%, which is a real achievement for an electrochromic glazing, because the electrochromic layers, even in the bleached state, do remain a little bit absorbing). So, the anti-reflecting stack of thin layers acts in synergy with the electrochromic system, thermally **and** optically, both in the colored and uncolored state of the electrochromic system, which combination of both thermal and optical effects could not have been predicted.

In another embodiment of the present invention, as recited in Claim 39, the above-discussed at least one antireflection coating is present, and the electrically-controllable system is a superposition of functional layers placed on a carrier substrate and provided with a protective film of the inorganic or polymeric layer type, such as in the form of a lacquer or varnish as recited in Claim 40. This embodiment, especially when it is directed to an "all solid" electrochromic system as recited in Claim 59, is superior because this structure is really very "light", very compact, compared to the usual laminated windows or screens, and also because it is optically very advantageous.

The presently-claimed subject matter is neither disclosed nor suggested by the applied prior art. Hashimoto et al is drawn to an electrochromic device. While, as the Examiner finds, Hashimoto et al discloses the presence of an antireflection coating, Hashimoto et al do not disclose a coating for attenuating/modifying the color of the glazing in reflection. The Examiner appears to rely on the disclosure of, *inter alia*, SiO_2 for the first transparent ion conductive layer 5 and the second transparent ion conductive layer 6 (column 4, lines 1-8). However, these layers are internal layers of the electrochromic device of Hashimoto et al. In addition, there is no evidence to support the Examiner's finding that either of layers 5 or 6 function as attenuating/modifying the color of the glazing in reflection.

Kiju discloses a face plate for a CRT, LCD or other displays comprising a high refractive index sub-stratum and a low refractive index super-stratum, as providing good antireflection and antistatic performance.

It is not clear why one skilled in the art would combine Hashimoto et al and Kiju, without the present disclosure as a guide. Hashimoto et al is drawn to electrochromic devices, while Kiju is concerned with displays such as CRT and LCD. The Examiner has provided no evidence to support a holding that one skilled in the art would employ an antireflection coating, disclosed for use with displays of the type mentioned above, as the antireflection coating for an electrochromic device. Moreover, even if one skilled in the art combined Hashimoto et al and Kiju, the result would not be presently-claimed invention since, as discussed above, the presently-recited at least one coating for attenuating/modifying the color of the glazing in reflection is neither disclosed nor suggested.

Nor, in the Final Office Action, does the Examiner address the above-discussed comparative data in support of Claim 16 and claims dependent thereon. The discussion of this comparative data is thus repeated and expanded.

Example 3 is according to the claimed invention; Example 4 contains no antireflection coating. As disclosed in the specification beginning at page 19, line 28, the optical properties of the glazing were improved when at least one coating attenuating the color or an antireflection coating was provided, but the maximum improvement was obtained by using both types of coating together. The following optical properties in the bleached state (+1.2 V supply), and in the colored state (-1.6 V supply) were compared for Examples 3 and 4:

light transmission T_L (%);

values of a_{TL}* and b_{TL}* in the (L*, a*, b*) system in transmission;

light reflection R_{L1} on the "internal side" and the corresponding a* and b* values;

light reflection R_{L2} on the "external side" and the corresponding a* and b* values;

energy transmission T_E (%);

energy reflection R_{E1} (on the external side);

energy reflection R_{E2} (on the internal side), and

solar factor SF (the solar factor is the ratio between the total energy entering the room through the glazing to the incident solar energy).

This data is shown in the specification at (corrected) Table 1 and Table 2 at page 21 (a copy of (corrected) Table 1 and Table 2 appears at the beginning of this amendment), and at page 22, lines 1-8, wherein for Example 3, the SF is 33% in the coloured state (-1.6 V) and 73% in the bleached state (+1.2 V); and for Example 4, the SF is 32% in the coloured state and 67% in the bleached state.

As disclosed in the specification at page 22, lines 9-24:

> It may be seen from this data that, in the case of Example 3 according to the invention, it is possible to achieve a wider light transmission range and, in particular, to achieve a T_L of almost 80% in the bleached state. The energy transmission in the bleached state of Example 3 is also lower than that of Example 4 and the energy reflections are higher, whether in the coloured sate or in the bleached state. Example 4, which has only the anti-colour coating, already shows an improvement over standard electrochromic glazing, especially with regard to R_{L1} and R_{L2} colorimetry in reflection. But Example 3, in which an antireflection coating has been added, allows the T_L range to be broadened towards higher values and allows the glazing to be made more effective from the standpoint of the filtration of thermal, especially solar, radiation.

Kliem discloses a liquid crystal system for a computer screen, for example, and not a glazing. As shown in Figure 1 and column 14, line 14ff therein, the active layer, i.e., the liquid crystal layer 32, is between two rigid substrates 46, 22: the protective layers 12 and 16 are not protective towards the "active" layer 32, but toward a polarizing layer 14, by sandwiching it.

In the Final Office Action, at page 9, the Examiner finds that "[t]he claims do not speak of the protective layer protecting toward the 'active' layer". In reply, it is understood that the protective film recited in Claim 39 is to protect the functional layers, not simply a layer which happens to be part of the electrically-controllable system (a). This is supported by the disclosure in the specification at page 12, lines 1-5, and indeed, the only reasonable interpretation of Claim 39 when read in light of the above-discussed disclosure is as advanced above.

Since independent Claims 16 and 39 have been demonstrated as patentable over the applied prior art, the dependent claims are necessarily patentable.

In the Advisory Action, the Examiner responds to some of the above arguments. However, as discussed in more detail below, the response is either inadequate, improper, or both.

Regarding Applicants' argument that Hashimoto et al do not disclose a coating for attenuating/modifying the color of the glazing in reflection, the Examiner relies on Applicants' disclosure at page 10, lines 24-30 of the specification that a primer/tie-layer coating may also be made to fulfill a role of attenuating the color of the glazing in reflection, combined with other disclosure that the tie-layer coating may comprise aluminum oxide, relying on page 10, lines 21-23 of the specification, or tantalum oxide, relying on page 17, lines 24-25 of the specification. Relying on this disclosure, the Examiner then asserts that Hashimoto et al disclose that their layer 4 may be aluminum oxide and that the two layers 5 and 6 may be, and are preferably, tantalum oxide. The Examiner then concludes that Hashimoto et al disclose a coating for attenuating/modifying the color of the glazing in reflection.

In reply, the Examiner improperly uses Applicants' disclosure against them, and what is more, uses it incorrectly. First of all, as already discussed above, layers 5 and 6 (as well as layer 4) are internal layers of the electrochromic device of Hashimoto et al. Nor is there any evidence to support the Examiner's finding that when aluminum oxide or tantalum oxide are used for these layers, they perform a function of attenuating/modifying the color of the glazing in reflection. Indeed, as Applicants' attorney pointed out during the interview held March 8, 2002, whether a coating performs an attenuating/modifying color of the glazing in reflection function is not a matter simply of the materials making up the coating, but it is also a function of the refractive indices of nearby layers. Indeed, the Examiner ignores the fact that the disclosure in the specification herein at page 10, lines 24-30 indicates that the tie-layer coating may be made to fulfill the role of attenuating the color of the glazing in reflection, "especially if it has a refractive index matching that of the plastic substrate and that of the layer of the functional system with which it is in contact."

In addition, the disclosure relied on by the Examiner to support his position is **not** prior art, but is rather part of Applicants' invention. In other words, Applicants' recognition that a tie-layer coating may perform an attenuating function if certain requirements are met is **not** any admission of prior art. Compare *In re Ruff*, 118 USPQ 340, 347 (CCPA 1958) ("To rely on an equivalence *known only to the applicant* to establish obviousness is to assume that his disclosure is a part of the prior art. The mere statement of this proposition reveals its fallaciousness.")

It is also an improper use of Applicants' disclosure to rely on the disclosure in the specification at page 17, lines 10-14 that the electrochromic glazing herein is suitable for use as a display screen of a flat-screen television. Simply because **Applicants'** invention is inclusive of both electrochromic devices and display screens for flat-screen televisions, does

not establish that a person of ordinary skill in the art would employ an antireflection coating used for such a display, as disclosed in Kiju, in an electrochromic device, as disclosed in Hashimoto et al. See again *Ruff, supra*.

Nor is it proper for the Examiner to dismiss all the comparative data of record by simply asserting that Hashimoto et al "teaches a glazing with both a coating for attenuating the color... and an antireflection coating...." The rejection herein is under 35 U.S.C. §103, not §102. Thus, inherent in the rejection is that there are differences between the presently-claimed invention and Hashimoto et al. For purposes of a complete examination, as mandated by 37 C.F.R. §1.104(b), the Examiner **must** evaluate this data, and explain his reasons for finding it deficient, if he so finds.

Finally, regarding Applicants' argument of how Claim 39 is to be understood, i.e., to protect the functional layers, the Examiner asserts that the claim "was not written to this specific limitation." In reply, as Applicants have argued above, the only reasonable interpretation of Claim 39 when read in light of the specification is that as advanced by Applicants. What other interpretations does the Examiner believe are reasonable? Moreover, if this is the only basis for denying patentability of this claim, Applicants have no objection to explicitly reciting in the claim --for the functional layers-- after "protective film". Will the Examiner agree to this amendment?

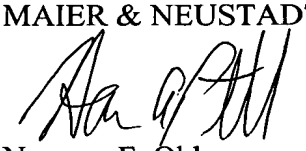
For all of the above reasons, it is respectfully requested that the rejections over prior art be withdrawn.

All of the presently pending claims in the application are believed to be in immediate

condition for allowance. Accordingly, Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Norman F. Oblon
Attorney of Record
Registration No. 24,618

Harris A. Pitlick
Registration No. 38,779

22850

(703) 413-3000
Fax #: (703)413-2220
NFO:HAP:

I:\atty\HAP\12470855-af2.wpd